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10/670,689	09/25/2003	David Kurt Neumann	DES-0202CIP	8379

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LAW OFFICE OF DALE B. HALLING, LLC
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EXAMINER

STAFFORD, PATRICK

ART UNIT	PAPER NUMBER
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2828

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/670,689	Applicant(s) NEUMANN ET AL.	
	Examiner PATRICK STAFFORD	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Claim 10 amended 10 December 2007.

Response to Arguments

Applicant's arguments filed 10 December 2007 have been fully considered but they are not persuasive.

In response to applicant's argument that the statutory double patenting rejection is inappropriate, U.S. Patent 6,658,038 and the current application share the same assignee and same inventors. In determining a double patenting rejection, the claims form the sole basis for the determination. Therefore, the fact that they are commonly owned does not overcome the rejection. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970). See MPEP 804.

In response to applicant's argument the examiner does not have the authority to determine which claims have the priority of the previously filed application to which this application claims priority as a continuation in part, the priority of a claim in a continuation in part is determined based on whether the claim has support in the previously filed disclosure. Claims 3, 5, 9-12 and 15 do not have any support in the disclosure of 10/198594. Therefore,

these claims do not receive the benefit of priority of application 10/198594. It is upon the examiner to determine if each claim has support in the previously filed application's disclosure when determining the priority of the claim. See MPEP 201.11.

In response to applicant's argument that statutory double patenting rejection and the U.S.C. 103 rejection are inconsistent and not possible, the rejection under U.S.C. 103 is based on the search by the examiner for the currently pending claims. It is appropriate to provide both a search based rejection and a statutory double patenting rejection when prior art references read on the claims of the pending application. Therefore the rejection under U.S.C. 103 and U.S.C. 101 is not only consistent but appropriate.

In response to applicant's argument that '928 does not disclose a laser, '928 teaches the use of a source of oxygen (col. 2, lines 45-48), a cryoreactor having an input connected to the source of oxygen (col. 2, lines 52-55), and an optical resonator cavity receiving the excited state oxygen and having a laser output (col. 2, lines 66-68) all used with a laser (col. 2, lines 3-5).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that '928 does not show how it can contain the optical pump of '203, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the

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art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). '203 teaches an optical pump, not toxic chemicals, to excite oxygen instead of using the chemical reaction of '928 in order to transmit the desired laser wavelength. The combination of the references does not require the use of chemicals of '928, instead it suggests the use of an optical pump to produce singlet oxygen.

In response to applicant's argument that '928 does not teach a cryoreactor, '928 teaches liquid oxygen (col. 2, lines 45-46, as liquid hydrogen peroxide) and the temperature range of liquid oxygen (col. 2, lines 44-45) in the reactor. The reactor of '928 can be classified as a cryoreactor, as described in claim 1. Therefore, '928 teaches the cryoreactor as claim in claim 1.

In response to applicant's argument that supercritical oxygen was not mentioned in either prior art reference, the use of supercritical oxygen in order to use oxygen as a cryogenic fluid was taught in reference '173.

In response to applicant's argument that cryoreactor having a waveguide is not taught by either prior art reference, '928 teaches the cryoreactor (col. 2, lines 59-61) includes an intake manifold (col. 2, lines 59-60), a waveguide (col. 2, lines 48-52) and an exhaust manifold (col. 2, lines 66-68).

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

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A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 1, 2, 4, 6-8, 13-14, 16-20 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1, 7, 8, 3, 2, 14, 10, 12, 14, 15, 19 and 3 of prior U.S. Patent No. 6,658,038. This is a double patenting rejection.

Priority

Claims 3, 5, 9-12 and 15 are not disclosed in the application 10/198,594. Therefore, the priority of 10/198,594 is not granted to these claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4, 6, 8-13, 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDermott (U.S. Patent 5,417,928, hereafter '928) in view of Hughes (U.S. Patent 4,074,203, hereafter '203).

Claim 1: '928 teaches an optical oxygen laser, comprising:

a source of oxygen (col. 2, lines 45-48);

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a cryoreactor having an input connected to the source of oxygen (col. 2, lines 52-55); and an optical resonator cavity receiving the excited state oxygen and having a laser output (col. 2, lines 66-68).

It does not explicitly teach an optical pump coupled to the cryoreactor and exciting the source of oxygen to form an excited state oxygen. However, '203 teaches a laser system producing singlet oxygen (col. 4, lines 3-8) employing an optical pump to excite the source of oxygen (col. 4, lines 11-15) in order to transmit the laser wavelength. Therefore, it would have been obvious to one of ordinary skill in that art at the time the invention was made to use an optical pump to excite the source of oxygen in order to transmit the laser wavelength.

Claim 2: '928 and '203 teach the laser of claim 1. '928 teaches the source of oxygen is a liquid oxygen (col. 2, lines 44-45).

Claim 4: '928 and '203 teach the laser of claim 1. '928 teaches the source of oxygen is inherently pressurized (col. 2, lines 44-45).

Claim 6: '928 and '203 teach the laser of claim 1. '203 teaches the optical pump source is a diode array.

Claim 8: '928 and '203 teach the laser of claim 6. '203 teaches the diode array is bathed in the source of oxygen (col. 4, lines 3-15).

Claim 9: '928 and '203 teach the laser of claim 1. '928 teaches the cryoreactor (col. 2, lines 59-61) includes an intake manifold (col. 2, lines 59-60), a waveguide (col. 2, lines 48-52) and an exhaust manifold (col. 2, lines 66-68).

Claim 10: '928 and '203 teach the laser of claim 9. '928 teaches the waveguide has an optical input (col. 5, lines 53-56).

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Claim 11: '928 and '203 teach the laser of claim 10. '928 teaches an exhaust pipe coupled to the exhaust manifold (col. 5, lines 50-53 and Fig. 10, part 26 coupled to part 24).

Claim 12: '928 and '203 teach the laser of claim 10. '928 teaches a pressure in the exhaust pipe is less than a pressure of the source of oxygen (col. 2, lines 59-64).

Claim 13: '928 teaches a method of operating an optical oxygen laser, comprising the steps of:
placing the excited state of oxygen in an optical resonant cavity having a laser output (col. 2, lines 66-68); and

exhausting a decayed state of oxygen from the optical resonant cavity (col. 3, lines 17-20).

It does not explicitly teach the step of illuminating a volume of oxygen with an optical pump source in a reactor to form an excited state of oxygen. However, '203 teaches a laser system producing singlet oxygen (col. 4, lines 3-8) comprising the step of illuminating a volume of oxygen with an optical pump source in a reactor to form an excited state of oxygen (col. 4, lines 11-15) in order to transmit the laser wavelength. Therefore, it would have been obvious to one of ordinary skill in that art at the time the invention was made to use an optical pump to excite the source of oxygen in order to transmit the laser wavelength.

Claim 16: '928 and '203 teach the method of claim 13. '928 teaches step (a) further includes the step of:

al) cooling the optical pump with a source of oxygen (col. 2, lines 44-45).

Claim 17: '928 teaches an optical oxygen laser, comprising:

a reactor coupled to a source oxygen (col. 2, lines 52-55), the reactor combining a volume of oxygen from the source of oxygen (col. 5, lines 50-56); and

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an optical resonant cavity receiving the excited state of oxygen and having a laser output (col. 2, lines 59-61).

It does not explicitly teach an optical pump to combine with a volume of oxygen. However, '203 teaches a laser system producing singlet oxygen (col. 4, lines 3-8) employing an optical pump to combine with a source of oxygen (col. 4, lines 11-15) in order to transmit the laser wavelength. Therefore, it would have been obvious to one of ordinary skill in that art at the time the invention was made to use an optical pump to combine with a volume of oxygen in order to transmit the laser wavelength.

Claim 18: '928 and '203 teach the laser of claim 17. '928 teaches the reactor has a waveguide where the light and the volume of oxygen are combined (col. 2, lines 48-56).

Claim 19: '928 and '203 teach the laser of claim 18. '928 teaches a pair of mirrors are placed at each end of the waveguide (col. 5, lines 50-56 and Fig. 10, part 23 "waveguide" and part 29, "mirrors").

Claim 20: '928 and '203 teach the laser of claim 17. '928 teaches the optical pump source is a diode array (col. 4, lines 11-15).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDermott (U.S. Patent 5,417,928, hereafter '928) in view of Hughes (U.S. Patent 4,074,203, hereafter '203) and further in view of Lynch et al (U.S. Patent 5,836,173, hereafter '173).

'928 and '203 teach the laser of claim 1. They do not explicitly teach the source of oxygen is a supercritical oxygen. However, '173 teaches the use of supercritical oxygen (col. 4, lines 37-47) in order to use oxygen as a cryogenic fluid (col. 5, lines 9-12). Therefore, it would

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have been obvious to one of ordinary skill in that art at the time the invention was made to use supercritical oxygen in order to use oxygen as a cryogenic fluid.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDermott (U.S. Patent 5,417,928, hereafter '928) in view of Hughes (U.S. Patent 4,074,203, hereafter '203) and further in view of Rockenfeller (U.S. Patent 4,461,756, hereafter '756).

'928 and '203 teach the laser of claim 1. They do not explicitly teach the source of oxygen has a pressure between two and ninety atmospheres. However, '756 teaches a singlet oxygen generating laser with a source of oxygen pressurized between two and ninety atmospheres (col. 6, lines 51-55) in order to generate the highest yield. Therefore, it would have been obvious to one of ordinary skill in that art at the time the invention was made to use a singlet oxygen generating laser with a source of oxygen pressurized between two and ninety atmospheres in order to generate the highest yield.

Claim 7, 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDermott (U.S. Patent 5,417,928, hereafter '928) in view of Hughes (U.S. Patent 4,074,203, hereafter '203) and further in view of Stone (U.S. Patent 4,523,315, hereafter '315).

Claim 7: '928 and '203 teach the laser of claim 6. It does not explicitly teach the diode array is coupled through an optical element to an optical fiber. However, '315 teaches a laser system producing singlet oxygen (col. 2, lines 13-18) with an optical fiber coupled to the laser source through an optical element (col. 2, lines 51-55) in order to achieve higher powers. Therefore, it would have been obvious to one of ordinary skill in that art at the time the invention was made to

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have a laser system producing singlet oxygen with an optical fiber coupled to the laser source through an optical element in order to achieve higher powers.

Claim 14: '928 and '203 teach the method of claim 13. They do not explicitly teach the step of (a) includes the step of powering a ytterbium doped fiber laser. However, '315 teaches a laser system producing singlet oxygen (col. 2, lines 13-18) using a ytterbium doped fiber laser to illuminate the volume of oxygen (col. 3, lines 13-18) in order to achieve higher powers.

Therefore, it would have been obvious to one of ordinary skill in that art at the time the invention was made to use a ytterbium doped fiber laser to illuminate the volume of oxygen in order to achieve higher powers.

Claim 15: '928 and '203 teach the method of claim 13. They do not explicitly teach the step of (a) includes the step of powering a ytterbium doped fiber laser. However, '315 teaches a laser system producing singlet oxygen (col. 2, lines 13-18) powering a Raman fiber laser to illuminate the volume of oxygen (col. 3, lines 13-15) in order to achieve higher powers. Therefore, it would have been obvious to one of ordinary skill in that art at the time the invention was made to power a Raman fiber laser to illuminate the volume of oxygen in order to achieve higher powers.

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICK STAFFORD whose telephone number is (571)270-1275. The examiner can normally be reached on M-Th 7:30-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. S./

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/Minsun Harvey/

Supervisory Patent Examiner, Art Unit 2828